

The University of Western Ontario
Department of Mathematics

MATH 2123B – Analysis II – Spring 2012

Lectures: Monday, Wednesday, and Thursday, from 09:30 to 10:30, in room KB-K103.

Instructor: Martin Pinsonnault

Office: MC 133

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Office Hours: To accommodate as many students as possible, office hours will be decided in class at the end of the first week. Students who would like to discuss specific issues privately are invited to take an appointment by sending me an email at: mpinson@uwo.ca

Web page: You should visit the WebCT course page regularly as course announcements and problem sets will be posted there:

<http://webct.uwo.ca/>

Textbook: S. R. Lay, “*Analysis, With an Introduction to Proof*”, 4th edition, Pearson Prentice Hall.

The textbook is available at the bookstore. It should be possible to find used copies as well.

Prerequisite: MATH 2122A/B with a minimum mark of 60%, or permission of the Department.

Antirequisite: The former Mathematics 306a/b.

Course Outline: A continuation of the rigorous introduction to analysis on the real line, begun in Mathematics 2122A/B, primarily for honors students. Uniform continuity. The Riemann integral. Series of numbers, convergence theory. Power series and Taylor series. Sequences and series of functions. Uniform convergence. Further topics as time permits.

Evaluation: The evaluation will be based on:

- 5 homeworks, for a total of 30%
- a midterm worth 30%
- a comprehensive final exam worth 40%

Examination dates: The examination dates will be posted as quickly as possible on WebCT.

Homeworks: Homeworks will be marked according to mathematical correctness, originality (understood as the ability to think independently and creatively), and quality of presentation. Note that the examinations will be partly based on material developed in the homeworks.

What is expected of the student: The aim of the course is for you to learn the basic results and techniques of real analysis, as well as to practice rigorous and logical thinking. For each hour of

lecture, you should spend about 2 hours studying the material at home. This includes reading the relevant sections of the textbook and, above all, doing the exercises at the end of each section. Do as many of them as necessary to feel comfortable with the material. Remember: You understand the material if you can answer questions about it that you have not seen before. Being able to solve the umpteenth exercise in a row of almost identical ones just shows that you remember the recipe. While this is certainly important, you should not confuse this with a true understanding of the concepts. This course covers a lot of material, and is cumulative, so it is necessary to work throughout the term in order to do well.

Exams: Questions will be similar **but not identical** to the exercises in the textbook. Here “similar” means that they require the same level of understanding, not that just the numbers were changed. The best way to prepare for exams is to do as many exercises as possible. Note that the point is not to learn solutions by heart, but to gain experience in finding them. If you cannot solve an exercise, the most important question you should ask yourself is not: “What is the solution?” but: “What is the concept that I haven’t understood?”

Missed midterm or final exam If you know ahead of time that you are unable to attend a quiz, midterm or final exam, you must let your instructor know at least two weeks in advance so alternative arrangements can be made. For final exam conflicts, see below.

If you are unable to attend an exam due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean’s office as soon as possible and contact your instructor immediately. It is the student’s responsibility to make alternative arrangements with their instructor. For further information please see

http://www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf

and the Student Services web site

<https://studentservices.uwo.ca/secure/index.cfm>

A student requiring academic accommodation due to illness should bring a Student Medical Certificate <http://www.uwo.ca/univsec/handbook/appeals/medicalform.pdf> with them when visiting an off-campus medical facility and use a Record Release Form for visits to Student Health Services. Hard copies of both of these forms are available from your home Faculty Academic Counselling Service.

If an exam is missed and sufficient documentation is provided, a make-up exam will be offered. Failure to follow these rules may result in a grade of zero.

Please see the University’s policy on final exam conflicts:

<http://www.uwo.ca/univsec/handbook/exam/conflicts.pdf>

Here are the first two paragraphs:

A student who is scheduled to write more than two examinations in any 23-hour period may request alternative arrangements through the office of the dean of their faculty.

A student who is scheduled to write two examinations concurrently must notify the Registrar so that arrangements may be made for both examinations to be written in the Examination Conflict Room in a sequence established by the Registrar.

Please also let your instructor know about the conflict, and read the entire University policy.

Academic offences Scholastic offences are taken seriously and students are directed to read the official policy:

http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf

Electronic devices (including cell phones and ipods) are not allowed at the exams and may be confiscated. The mere possession of such devices will already be considered an academic offence.

Accessibility: Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 for any specific question regarding an accommodation.

A note from the office of the Dean of the Faculty of Science You are responsible for ensuring that you have successfully completed all course prerequisites and that you have not taken an antirequisite course. Lack of prerequisites may not be used as the basis of appeal. If you are not eligible for a course, you may be removed from it at any time, and will receive no adjustment to your fees. These decisions cannot be appealed. If you do not have the course prerequisites, and have not been granted a special permission to take the course by the department, it is in your best interest to drop the course well before the end of the add period. Your prompt attention to this matter will not only help protect your record, but will ensure that spaces become available for students who require this course for graduation.